

A Crash Modification Factor for Signalized Superstreet Intersection



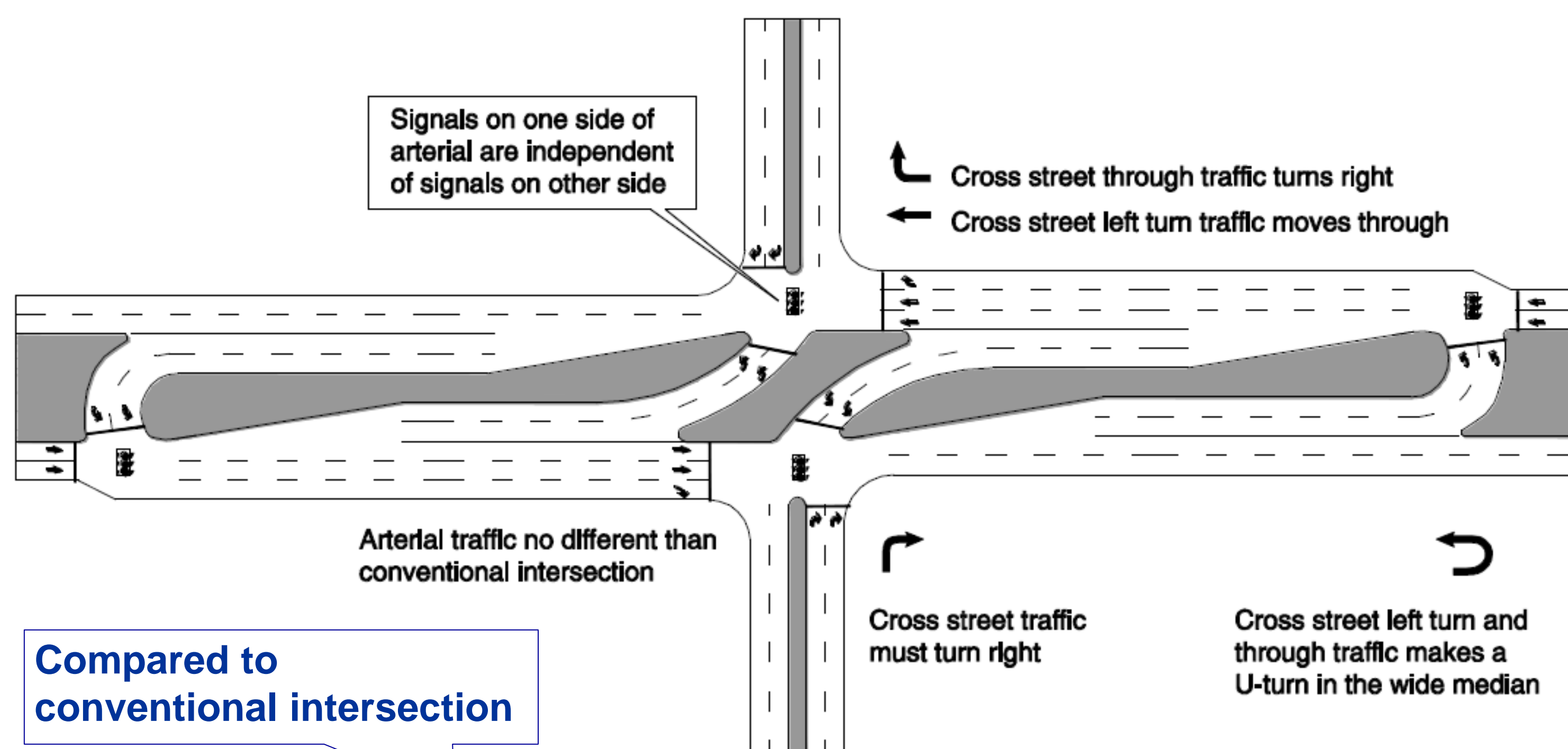
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 Also thanks to VHB and Low-Cost Countermeasure states

Aka, synchronized street, RCUT, j-turn, reduced conflict intersection



Superstreets can be great unsignalized or signalized

- Unequaled two-way signal progression
- Lower travel times
- Easier for pedestrians to cross
- Speed control



Sites

- Of all potential sites, 11 in four states had no significant other changes from before to after superstreet construction
- Suburban, four-lane or six-lane meets two-lane or four-lane
- Some three-legged sites
- 1200 before crashes, 950 after crashes

Results

- Crashes down at eight sites, up at three sites
- Sites with lower demands from minor street did better
- **CMF for overall crashes = 0.85**
- Standard deviation = 0.16
- **CMF for injury crashes = 0.78**
- Standard deviation = 0.20

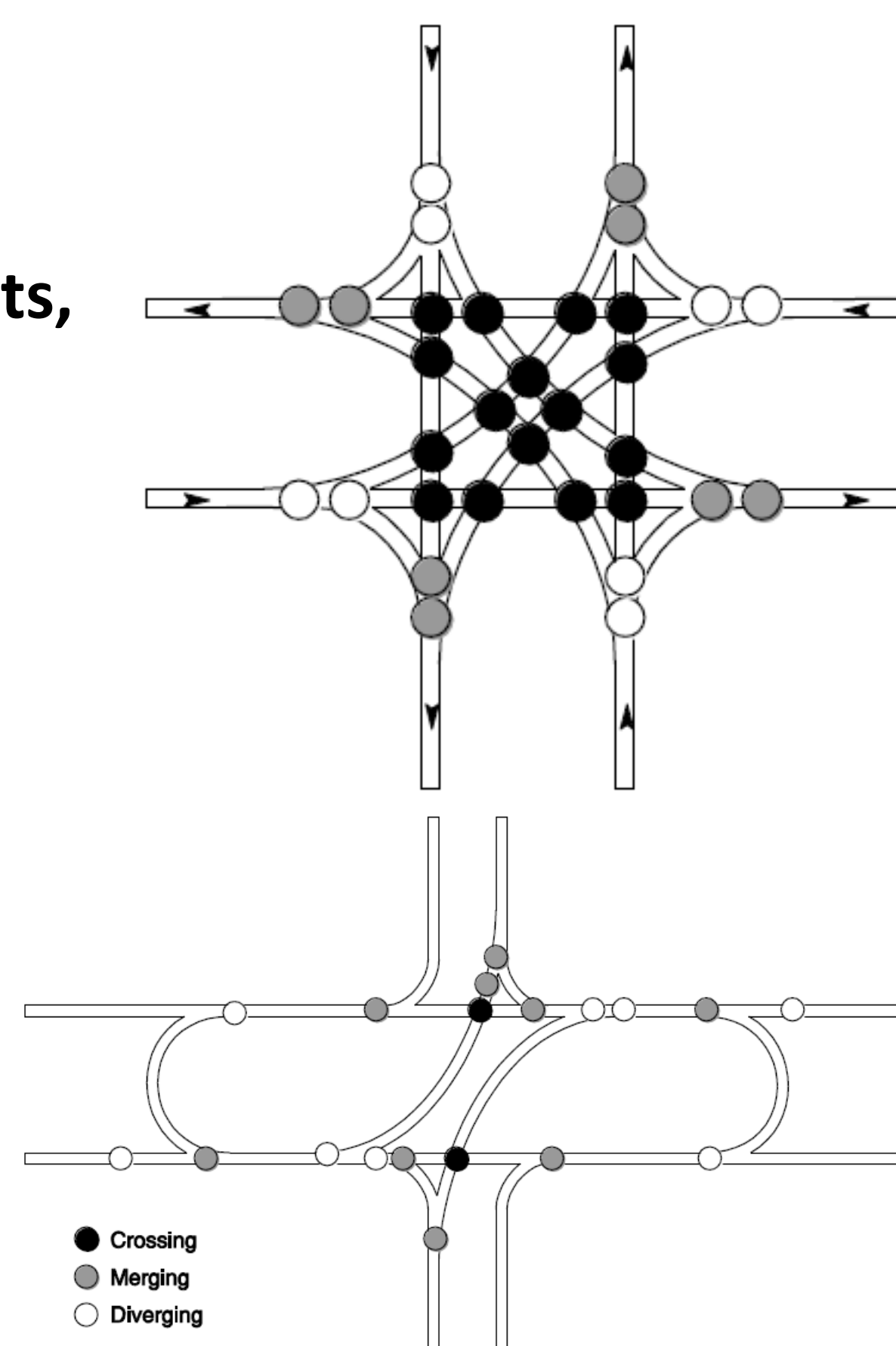
Means 15 percent reduction expected

Signalized superstreets are probably safer

- Conflict points reduced and separated
- Two-phase signals, protected movements
- On the other hand, unexpected movements, side-by-side turns, longer travel distances



Site in Ohio.



Conflict points at conventional and superstreet intersections.



Site in Texas.

Profession needs a crash modification factor (CMF)

- Minor street drivers object to longer travel
- Business owners try to involve media and politicians
- Agencies need numbers for prioritization
- CMF for unsignalized superstreet, which is very healthy, not convincing in these cases

Method

- Before and after observational study with crash data
- Comparison site adjustment for any simultaneous events
- No need for Empirical Bayes to adjust for regression to mean
 - Signalized superstreets not installed as high-crash countermeasures
- Construction years not analyzed

Recommendations

- Use the new CMFs, win the p.r. battles
- Build more superstreets
- Save crashes and injuries and probably lives
 - And get other benefits
- Collect more data, refine the CMFs

Acknowledgments

Thanks to the states that contributed data and the students who worked on this project. All opinions are the author's alone.

References

- FHWA (2014). Restricted Crossing U-turn Intersection Informational Guide, FHWA-SA-14-070, August.
- Hauer, E. (1997). Observational Before-After Studies in Road Safety, Pergamon. Project report from FHWA coming soon.